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09/577,032	05/23/2000	Kunihiro Tashiro	1324.64102	3410

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EXAMINER	
DUONG, THOI V	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/577,032	TASHIRO ET AL.	
	Examiner	Art Unit	
	Thoi V. Duong	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-9 and 17-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1,2,4-8,17 and 18* is/are allowed.

6)☒ Claim(s) *9,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *02/13/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the Amendment filed February 13, 2006.

Accordingly, claims 17-19 were amended, and claims 3, 10-16 and 21-56 were cancelled. Currently, claims 1, 2, 4-9 and 17-20 are pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claim 9 rejected under 35 U.S.C. 102(e) as being anticipated by von Gutfeld et al. (USPN 6,179,679 B1).

As shown in Fig. 4, von Gutfeld et al. discloses a liquid crystal display comprising:

a sealing material 101 made of a photo-curing material sealing liquid crystal sandwiched between two substrates 103 and 104 (col. 1, lines 36-44) and having a

portion overlapping with a shading film 105 and an opening portion (between shading film) viewed from a direction vertical to the substrate (col. 4, lines 24-29); and

a light-reflection layer 401 having a concave-convex structure which has inclined surfaces and formed only in an area to be under the sealing material on the substrate 104 in order to provide diffuse reflection to cure the portions of the sealant material 101 shadowed by the shading film 105 (col. 4, lines 27-35).

4. Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by von Gutfeld (USPN 6,219,126 B1).

As shown in Figs. 1-4, von Gutfeld discloses a liquid crystal display comprising:

two substrates 1a, 1b attached opposing each other;

a sealing material 2 formed outside a display area (containing liquid crystal 4) having a plurality of pixels for sealing liquid crystal 4 between the two substrates,

a barrier fillet 3 (3a, 3b, 3c) (Applicant's convex shape structure) for defining a cell gap, provided in a frame shape between the sealing material 2 and the display area comprising liquid crystal 4 (col. 1, line 58 through col. 4, line 2); and

a gap portion formed between the sealing material 2 and the barrier fillet structure 3a, 3c (spaced-apart glass spacer fillets) for draining excess liquid crystal (spillover 6) overflowing from the display area (col. 4, line 64 through col. 5, line 5).

Von Gutfeld discloses that the convex shape structure may take the form of two spaced-apart glass fillets (3a, 3c) together with a compressible fillet (3b) between them (col. 5, lines 29-42),

wherein, as shown in Fig. 4, the two spaced-apart glass fillets 3a, 3c are formed on a lower substrate 1a, and, as shown in Fig. 3, the compressible fillet 3b can be deposited on an upper substrate 1b (col. 4, line 49 through col. 5, line 5).

Accordingly, the barrier fillet 3 (3a, 3b, 3c) is formed on both substrates.

5. Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Hirakata et al. (Hirakata, USPN 6,465,268 B2).

As shown in Fig. 26, Hirakata discloses a liquid crystal display comprising:

two substrates attached opposing each other (col. 25, line 66 through col. 26, line 2);

a sealing material 730 (gap retaining member) formed outside a display area 202 having a plurality of pixels for sealing liquid crystal between the two substrates (col. 6, lines 4-8 and col. 26, lines 11-13); and

a hollow frame-shape sealing material 731, 732 (gap retaining members formed around the driver-circuit-confronting areas 203 and 204) at an external periphery of the sealing material 730, wherein the liquid crystal is injected into only the space corresponding to the pixel area 102 and is not injected into the spaces corresponding to the driver circuit areas 103 and 104 (col. 26, lines 11-25).

Since Hirakata discloses a liquid crystal display having the same structure as the claimed invention, the hollow frame-shape sealing material 731, 732 of Hirakata inherently functions as a suction in an atmosphere.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiguchi et al. (Nishiguchi, USPN 6,226,067 B1).

As shown in Fig. 2b, Nishiguchi discloses a liquid crystal display comprising:

two substrates 1a and 1b attached opposing each other; and

a sealing material 7 formed outside a display area (light modulation region) having a plurality of pixels for sealing liquid crystal 5 between the two substrates (col. 5, line 64 through col. 6, line 3 and col. 6, lines 40-42).

As shown in Fig. 30, Nishiguchi also discloses that the sealing material 7 (wall-like structure) may have a multilayer structure of three layers (inner layer, middle layer and outer layer) (col. 16, lines 14-16).

Thus, it is obvious that a hollow frame-shape sealing material is formed by the middle layer and the outer layer of the sealing material 7 at an external periphery of the inner layer of the sealing material 7 for functioning as suction in an atmosphere since this multiplayer structure improves the air-tightness seal of the display to prevent the intrusion of moisture and impurities from outside the display (col. 16, lines 16-23).

Allowable Subject Matter

8. Claims 1, 2, 4-8, 17 and 18 are allowed.

The following is an examiner's statement of reasons for allowance: none of the prior art of record fairly suggests or shows all of the limitations as claimed. Specifically,

Re claim 1, none of the prior art of record discloses, in combination with other limitations as claimed, a blue-colored layer, a red-color layer and a green-color layer formed at an area of a shading film, wherein only the blue-colored layer is in contact with the sealing material.

The most relevant reference, USPN 5,910,829 to Shimada et al. (Shimada), fails to disclose or suggest that only the blue-colored layer is in contact with the sealing material. In Fig. 14, Shimada shows a blue-colored layer B being in contact with the sealing material 133; however, there are only one blue-colored layer formed at an area of the shading film 134. In Figs. 15 and 16, Shimada et al. shows a blue-colored layer B, a red-color layer R and a green-color layer G formed at an area of the shading film 134a; however, the blue-colored layer B and the red-color layer R are in contact with the sealing material 133.

Re claim 4, none of the prior art of record discloses, in combination with other limitations as claimed, a light incident hole opened at a shading film above a transfer.

The most relevant reference, JP 09-090383 to Hasegawa et al. (JP'383), fails to disclose a light incident hole opened at the shading film above the transfer. As shown in Figs. 5 and 8, the JP'383 only discloses a light transmitting part (hole filled with transparent material) 53 formed at the shading film 43b.

Re claim 5, none of the prior art of record discloses, in combination with other limitations as claimed, an external peripheral end of the frame-shape structure and an

external peripheral end of the black matrix picture-frame being formed to coincide with each other when viewing from a perpendicular direction to the substrates.

The most reference, USPN 5,621,553 to Nishiguchi et al. (Nishiguchi), fails to suggest the claimed invention. As shown in Fig. 1, Nishiguchi only discloses an external peripheral end of the frame-shape structure 7 and an internal peripheral end 8 of the black matrix picture-frame 8 being formed to coincide with each other when viewing from a perpendicular direction to the substrates.

Re claim 17, none of the prior art of record discloses, in combination with other limitations as claimed, a liquid crystal display comprising a plurality of structures formed inside the display area of the substrate to which liquid crystal is dropped for changing spreading shape of dropped liquid crystal from a circular shape to a square shape.

The most reference, USPN 6,226,067 B1 to Nishiguchi et al. (Nishiguchi), fails to disclose the spreading shape of dropped liquid crystal changing from a circular shape to a square shape. As shown in Figs. 7, 9 and 21b, Nishiguchi only discloses a liquid crystal display comprising a plurality of structures 3 formed inside the display area of the substrate 1 to which liquid crystal 5 is dropped in a circular shape for preventing flow of the liquid crystal within the liquid crystal light modulation area. Nishiguchi is silent about the spreading shape of the dropped liquid crystal.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

9. Applicant's arguments filed October 17, 2005 have been fully considered but they are not persuasive.

Re claim 9, Applicant argued that von Gutfeld et al. provides no teaching or suggestion that the reflector 401 is formed only under the sealing material. The Examiner disagrees with Applicant's remarks since Fig. 4 of Von Gutfeld et al. clearly shows that the light reflection layer 401 is formed only in the area under the sealing material 101. Nowhere in the reference of von Gutfeld et al. shows that the light reflection layer 401 is formed elsewhere than under the sealing material 101. Moreover, von Gutfeld et al. discloses that the light-reflection layer 401 provides diffuse reflection to cure the portion of the sealant strip 101 shadowed by the shading film 105 (col. 4, lines 27-35). Therefore, there's no reason why the light-reflection layer 401 should be formed elsewhere than under the sealing material 101.

Further, Applicant argued that since Fig. 4 of von Gutfeld et al. only shows a rough surface to its reflector 401, von Gutfeld et al. does not teach or even suggest that this surface has a regular concavo-convex structure. The Examiner again disagrees since von Gutfeld et al. teaches that the reflector 401 can have micron sized asperities to provide diffuse reflection (col. 4, lines 33-36), the surface of the reflector has a concavo-convex structure with inclined surfaces as clearly shown in Fig. 4. Moreover, the reflector 401 of von Gutfeld et al. shown in Fig. 4 is the same as that of the invention shown in Fig. 21a.

Re claim 20, Applicant argued that Nishiguchi fails to discloses any ability of its multilayer structure to function as a suction in an atmosphere and Nishiguchi teaches away from the invention by providing openings which destroy any ability of the structure to provide a suction.

The Examiner disagrees with Applicant's remarks.

At first, Nishiguchi discloses the multilayer structure of three layers of Nishiguchi, which is similar structure recited in claim 20, having adhesion property and high air-tightness seal (col. 15, line 46 through col. 16, line 23); accordingly, it is obvious that the multilayer structure of three layers of Nishiguchi functions as a suction in atmosphere since the structure recited in the reference is substantially identical to that of the claims (see MPEP 2112.01 [R2]). Moreover, while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (see MPEP 2114 [R1]).

Further, Nishiguchi discloses that the opening of the structure may be provided as necessary and may be sealed after the liquid crystal material is loaded; accordingly, the opening is optional and the opening is not permanently existed in the structure to destroy any ability of the structure to provide a suction. Therefore, Nishiguchi does not teach away from the invention and a prima facie of obviousness has been established.

Re claim 19, Applicant argued that von Gutfeld does not disclose a convex shaped structure for defining a cell gap provided in a frame shape between the sealing material and the display area since the glass ridge-like spacer fillet 3 of von Gutfeld are of "substantially uniform thickness" and by definition, a shape having "uniform thickness"

cannot be convex. This is not true since Applicant's definition is not consistent with Figs. 88a, 88b of the specification where the convex frame shapes 298 and 300 have substantially uniform thickness. Applicant also referred to one common definition of "convex" being "curved or rounded outward like the outside of a circle", and claimed that this definition is not inconsistence with the embodiments illustrated in the present specification. This is not true either because this definition is inconsistent with Figs. 88a, 88b, 92 and 93 of the specification, where the convex frame shapes 298, 300 96 and 98 are not curved or rounded outward.

Accordingly, the convex frame shapes of the present invention are not curved or rounded outward and may have a uniform thickness. Therefore, the claim is to be interpreted in light of the specification and von Gutfeld does disclose a convex shaped structure 3 for defining a cell gap provided in a frame shape between the sealing material and the display area.

Further, Applicant argued that von Gutfeld teaches to remove the compressible fillet 3b from the structure shown in Fig. 4 in order to catch the spillover 6 of the liquid crystal. The Examiner disagrees since von Gutfeld further discloses that the convex shape structure may take the form of two spaced-apart glass fillets (3a, 3c) together with a compressible fillet (3b) between them (col. 5, lines 29-42),

wherein, as shown in Fig. 4, the two spaced-apart glass fillets 3a, 3c are formed on a lower substrate 1a, and, as shown in Fig. 3, the compressible fillet 3b can be deposited on an upper substrate 1b (col. 4, line 49 through col. 5, line 5).

Accordingly, the barrier fillet 3 (3a, 3b, 3c) is formed on both substrates as recited in the claim.

Finally, re claim 20, Applicant argued that Hirakata fails to teach any additional process to actually decompress the inside frames of the gap retaining members 731, 732 which would be necessary for the members to function as a suction in an atmosphere. Again, the Examiner disagrees since Applicant does not claim a process and the structure recited in the reference is substantially identical to that of the claims, claimed functions are presumed to be inherent (see MPEP 2112.01 [R2]). Moreover, while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (see MPEP 2114 [R1]).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong

04/24/2006

DUNG T. NGU
PRIMARY EXA